THE RUSSIAN MILITARY AND THE REVOLUTION IN MILITARY AFFAIRS: A CASE OF THE THE ORACLE OF DELPHI OR CASSANDRA?

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This papers was originally presented at:
MORS Conference
Annapolis, Maryland
6-8 June 1995

PRÉCIS

As the Russian military struggles with a host of issues raised by the collapse of the Soviet Union, the socio-economic and political transformation within Russia, its own internal crises, and the demands of on-going operations in its own periphery and the so-called "near abroad," it also confronts the prospect of a Revolution in Military Affairs [RMA], the scope and significance of which has been a topic of debate and discussion within the Soviet and Russian military for over a decade. At the same Russian forecasters also confront a radically different international system and new threat environment. On the basis of published articles and books by leading Russian military analysts the author assesses the impact of the Revolution in Military Affairs on the Russian military, noting the complex relationship among the revolution, the society/economy which will have to sustain and support military modernization, and the international environment. Building on studies devoted to the Russian and Soviet experience with foresight in military affairs, the author addresses the current challenges and dilemmas posed by the revolution to the Russian military. The author outlines the competing forecasts of the revolution in military affairs and the alternative courses of action being recommended by forecasters with specific institutional ties in their efforts to shape Russian national security policy.

One of the key problem of military forecasting, which has assumed greater importance in the post-Soviet era, is the question of the reception of forecasts by institutional consumers, the political leadership, and the larger public. In the past the ultimate consumer of military-technical forecasting was the Soviet General Staff. Under perestroyka and glasnost reformers used political-military forecasts to guide and then challenge the General Staff's military-technical forecasts. Now in a time of a weakened General Staff , chaotic Ministry of Defense, an amorphous national security elite, and triage defense economics, the number of sponsors for military technical-forecasting has increased, and the competition for legitimacy has become quite intense. The article addresses the issues raised by this situation in the context of competing forecasts on the roles and missions of the Russian Navy in the early twentieth-first century.

The author relates the various interpretations of the RMA to the two prophetic metaphors mentioned in the subtitle. One is Delphic, i. e., sweeping in scope, demanding in action, but ambiguous in meaning. Military power remains central to the Russian state's existence, internal stability, and external authority. This interpretation can be stretched to fit a wide range of responses from an attempt to return to Ogarkov's Cold-War Army to providing the basis for a more measured effort to sustain a small, modern professional force and a modest military-industrial base. The second is Cassandrian, i. e., articulate in its vision of the future of armed conflict, exact in its assessment of the dynamics of threat development, challenging in its demands upon society, the economy, and the military, precise in its understanding of the relationship between the transformations in society and economy and their international ramifications, and for all these reasons not very likely to be accepted by the military elite or the managers of the military-industrial complex. The author provides an extended review of General M. A. Gareev's recent book on the contours of modern armed conflict and relates this to the re-institutionalization of the forecasting process.

RUSSIAN MILITARY FORECASTING AND THE REVOLUTION IN MILITARY AFFAIRS: A CASE OF THE ORACLE OF DELPHI OR CASSANDRA?

INTRODUCTION: THE REVOLUTION IN MILITARY AFFAIRS

The Gulf War initiated an intense debate over the existence of a "revolution in military affairs" [RMA]. Since the end of the Cold War the RMA's significance for U. S. Defense planning has become a part of the ongoing conflict over military downsizing, funding current operations, and maintaining the technological initiative for U. S. into the next century. The exchanges have become increasingly intense. The two positions, pitting advocates against doubting Thomas's, contrast a revolutionary interpretation against an evolutionary one. In the former case, the Gulf WWar represents the harbinger of radical changes, transforming warfare as profoundly as mechanization and the introduction of nuclear weapons.1This interpretation sees the RMA as the transformation of combat through the appearance of advanced, high-accuracy, precision strike weapons, advanced systems of C3I, electronic warfare and computer simulation. Quality forces will be those equipped, organized, and trained to make use of advantages in information, penetration, and precision against an opposing force. What happened in the Gulf War was analogous to the use new technology and tactical techniques in the final year of World War I. Then new techniques and weapons restored tactical maneuver and brought the prospect of breakthroughs and operational success in the theater. The German Army relied on tactical innovation, associated with the use of shock troops. The Allies, following the British lead, embraced technological innovation through the introduction of the tank and its massed employment in support of infantry asaults. At war's end the full implications of these innovations remained unclear. Theory outran existing capabilities, and military innovation in a time of reduced funding and low threat perception proved slow. Only two decades later did a synthesis of these innovations emerge as Blitzkrieg in Nazi Germany. Here the massed employment of Panzer divisions, embodying the tactical integration of tank, radio communications, and attack

aviation, restored maneuver and defeated opponents who fought a positional war. By the final stages of World War the Soviet Army had achieved the organizational maturity and material support to put into practice deep operations. The mature Soviet approach to mechanized warfare had an operational focus. Tank and mechanized formations, airborne forces, and air armies conducted deep battle, deep and successive operations to achieve the destruction of the enemy force throughout the depths of its deployment and across vast continental theaters. In each case the practitioners adapted their RMA to the requirements of a particular theater and depended upon a theater infrastructure to sustain and support its successful application. Thus, the situation after the Gulf War in this interpretation was a challenge for innovation. The revolution in military affairs being the product of the information society only being now born, the very pace and scope of change within that society provide the form and substance to an ongoing, but still undefined, military revolution.2 Critics dismiss this interpretation of the revolution in military affairs. They portray it as a slick device the U. S. military is using to retain a disproportionate share of reduced federal spending in the aftermath of the Cold War.3

The critics disagree on the interpretation of the Gulf War and its significance. Even before that conflict a debate over a new revolution in military affairs was under way. Some analysts drew on military history to identify a qualitative change in the evolution of military art and began forecasting a significant shift in the nature of war. The essence of modern war as a social phenomenon changed radically over the last century. The twentieth century began in August 1914 with the arrival of mass, industrial war and total war. The instruments of war outgrew their political utility until a major military confrontation between the two militarized bloc became unthinkable. Military power could and was used in local conflicts. In their strategic forms nuclear arsenals deterred the use of other forms of military power to resolve the core contradiction between the West and the Soviet bloc in Europe. Conventional weapons also evolved in response to new technologies and began to reshape military art. In the mid-1980s the late Brigadier Richard Simpkin, drawing heavily on Soviet military theory, made a compelling case for the need for military theory to lead technological innovation. He pointed to the further adaptation of deep battle to then emerging concepts of operational maneuver and air mobility, associated with the Soviet opertional-maneuver group [OMG].4With the development of precision, deep strike systems associated with NATO's Follow-on Forces Attack [FOFA] concept, a new discussion of a shift in the nature of fire and maneuver emerged.5 Writing on the eve of the Gulf War, Christopher Bellamy called attention to the changes in technology reshaping warfare.

> Advanced military forces are dependent on computers, radio and other communications, and satellites, for reconnaissance, navigation, and communications. Attacking the enemy's "brain and stomach" need no longer depend on tanks racing round a flank, or aircraft pounding headquarters and industrial centres from above. The enemy's brain and nerve system can be seared and paralyzed by jamming, and various types of electromagnetic weapons. Electronic warfare, and other "soft kill" weapons are likely to usurp the position envisaged for tanks and aircraft in much of the 1930s military theory. Low-frequency weapons and application of bioelectronics may severely reduce the effectiveness and alertness of enemy forces, commanders, and political leaders.6

Bellamy asserted that large-scale land warfare among major powers had evolved to a dead end by the finish of the Cold War. Mass warfare will give way to local wars, fought by forces configured for such special operations. Political changes, especially the emergence of a multipolar world, will push military forces toward greater professionalism and new technologies.

The core issue in this debate is the relationship between war and society. The unrelenting pace of technological innovation, fundamental shifts in the subject and organization of production, the vast recasting of institutions, and rapid shifts in social values raise the prospect of a self-organizing, adaptive society in a state of becoming, making the current era truly revolutionary. Military institutions must adapt to this challenge within their own societies and prepare for the emergence of new and potential conflicts within and among states and non-states. Ethno-national conflicts, ecological threats, and demographic catastrophes [mass internal migrations, famine, epidemics, and the flight of refugees affecting entire states and regions] and large-scale social pathologies with transnational dimensions [narco-trafficking, organized crime as a social movement, and terrorism] form the new matrix of threats in an unstable world. How military institutions might adapt to these challenges is at the very core of the discussion of the revolution in military affairs. It is here that technological and social change meet.

As popularized by Alvin and Heidi Toffler, post-industrial, information society has produced the potential for "third wave" warfare, which transcends industrial war in the same manner that the former negated agrarian warfare.7 Recognizing the persistence of earlier forms of warfare and their intermingling in conflicts fought by societies at different stages of development, the Tofflers assert that revolutions in military affairs are quite rare and reflect fundamental shifts in the very organizing principles of societies. It is not to be confused with a mere evolution in military art. Military institutions, which seek to adapt and evolve gradually, will find their response inadequate, untimely, and possibly fatal. They warn:

> A true revolution goes beyond that to change the game itself, including its rules, its equipment, the size and organization of the "team," their training, doctrine, tactics, and just about everything else. It does this not in one "team" but in many simultaneously. Even more important, it changes the relationship of the game to society itself.8

Racing toward post-industrial, society, the advanced nations of the world are in a contest to see which will reap the greatest benefits from this transformation. "The global competitive race will be won by the countries that complete their Third Wave transformation with the least amount of domestic dislocation and unrest."9 In military terms the United States, according to this interpretation, has already made the first step to "Third Wave" warfare with the development of Air/Land Battle and advanced, high-precision, deep-strike weapons and applied them successfully in the Persian Gulf War against a regional, second-wave, industrial military.10 Their discussion of "Third Wave" warfare asserts the need to create new instruments that can be used to prevent small conflicts from engendering major wars. Thus, the war and anti-war of their title involve the adaptation of new ways of "understanding . . . the revolutionary new linkage between knowledge, wealth and war."11 Darwinists in their view of this race to the swift in creating an information society, the Tofflers see serious global problems arising from the very process of creating this new order. As Alvin Toffler asserted in a recent interview, this future

will have its own sources of conflict layered on top of existing sources and its own terror weapons.

> Also, there will be massive dislocations. Just like at the time of the Industrial Revolution. And this current change is even bigger, moving faster and covering more of the planet. So there will be a lot of social upheaval. There are terrifying pieces in the future. Race-specific weaponry. You can zero in on ethnically linked genetic characteristics and target those who carry them. This is genetic warfare, a modern version of giving the Indians infected blankets. Terrifying. Absolutely.12

While the Tofflers have been dismissed as popularizers selling futurist snake oil to the gullible, their wide-ranging forecasts and persistent emphasis on the challenge of change to human society call attention to the need to grasp the interconnections among trends in diverse and seeming unconnected fields of endeavor. As consultants, the Tofflers have made a career out of advising practical leaders of just such trends. Their recent attention to the RMA in this regard has much in common with that of Russian military forecasters, who have been trying to fathom its "law-governed patterns" [zakonomernosti] for almost two decades.

RUSSIAN MILITARY FORECASTERS AND THE RMA

The Russian military, and especially its general staff, inherited from the Soviet military the firm belief that revolutionary changes in the nature of warfare are afoot, and that these innovations demand significant changes in the military-technical side of military doctrine and in the approach to military construction. Beginning with the Marshal Ogarkov's tenure as Chief of the General Staff, Soviet military analysts began to speak of a revolution in military affairs. They associated it with a new generation of nuclear weapons and the appearance of advanced, high-precision conventional weapons. General of the Army Makhmut Akhmetovich Gareev, then Deputy Chief of the Soviet General Staff and Chief of the Directorate for Military Science, described the RMA in the following terms:

> Now we can speak about a turning point in the development of military science and military art. In general, a new qualitative leap in the development of military affairs, connected with the modernization of nuclear weapons and especially the appearance of new types of conventional weapons, is ripening. In connection with this [process] there has arisen the need to rethink the basic military-political and operational-strategic problems of the defense of the socialist Fatherland.13

The relationship among military science, the social sciences and forecasting in military affairs became a central feature of the Soviet military system as it went into crisis during the era of glasnost and perestroyka. On the very eve of the beginning of that crisis Professor John Erickson pointed out that "Forecasting has become something of a favourite Soviet pastime, indeed more than that, for it has been endowed with a certain ideological rectitude . . . ."14 Forecasting [prognozirovanie], which includes highly sophisticated techniques employed in operations research and systems analysis, in this context, had become a basic tool in the exercise of foresight [predvidenie], and foresight in the political and military realms was viewed as a weapon, which the skilled commander could wield against his opponent. Through its use one strove to foresee enemy actions, even as one used stratagem to confuse the enemy and force him

into miscalculations. By imposing the unexpected upon the enemy, the commander could achieve surprise.15While Soviet authors freely acknowledged all the difficulties associated with foresight in military affairs, making it much more difficult than in other realms, they still saw the skill as a key to victory over an opponent.

> Foresight (military) is the process of cognition regarding possible changes in military affairs, the determination of the perspectives of its future development. The basis of the science of foresight is knowledge of the objective laws of war, the dialectical-materialist analysis of events transpiring in a given concrete-historical context.16

Over the preceding decade foresight and forecasting have taken on increasing importance because of the accelerating pace of change in military affairs. As General of the Army I. E. Shavrov and Colonel M. I. Galkin observed in 1977:

> The contemporary period of military construction is characterized by the unprecedented intensity of the renewal of the means of war, the appearance of qualitatively new types of weapons and equipment, by searches for such forms and means of strategic, operational and tactical action, which have never been employed by a single army of the world. New means of the conduct of military actions, new ways of perfecting the organizational structure of the armed forces, methods of their combat preparation and raising their combat readiness must be found and theoretically proved before they can become the property of military praxis. All this leads to a sharp rise of the role of military science, which has become the most important factor of the combat might of the armed forces, and scientific troop control is the decisive condition for the achievement of victory.17

The relationship between military science and foresight was explicit, for, as these authors emphasized, "In its essence, military science is the science of future war."18

This "science of future war" had, however, operated within very strict confines in the past. General Staff officers charged with forecasting traditionally focused their attention upon military-technical issues, advising the Party leadership and state but deferring to them on political forecasts. A broad cloak of secrecy kept the circle of military forecasters quite small, inhibited dialogue among military-technical analysts and civilian social scientists, and precluded the dissemination of information about Soviet forces and equipment. Civilians, outside the Party and state leadership, were in no position to comment on or criticize the military-technical forecasts of the General Staff. One of the major points of those civilian analysts trying to bring glasnost to the Soviet security debate was the need to break down the wall of secrecy surrounding Soviet data on Soviet military forces.19 Even inside the military there were distinct limits on the range of forecasts that the military leadership would accept. Forecasts that called into question certain basic assumptions about the military-technical nature of the threat, the feasibility of certain types of combat actions, or the role of particular branches of the armed forces in future conflict were likely to face significant bureaucratic resistance, unless they enjoyed the patronage of powerful sponsors within the military and political leadership. Members of the Supreme Soviet elected in 1990, who sought information about the Soviet Armed Forces that they funded and over which they exercised oversight, turned to Western publications, including Soviet Military Power, for data.

After 1984, when the Soviet government reorganized its research effort in military science and those social sciences connected with national security affairs, there was a marked shift in the content and form of Soviet military foresight.20 These changes in Soviet military foresight and forecasting became clearly manifest after the XXVII Party Congress and were an attribute of Gorbachev's "new thinking" in the areas of war prevention, reasonable sufficient defense, and a defensive military doctrine.21These products addressed the military-political side of forecasting and imposed implied changes in a wide range of military-technical issues relating to military doctrine.22This was particularly true where they challenged what one author has called its "offensive genetic code."23 Moreover, glasnost brought with it public debate over these issues and calls for a reduction of the secrecy that surrounded defense and security matters and had made them the exclusive domain of the Party-State leadership and the General Staff. As one author involved in this process pointed out, there was very little coordination or agreement on the execution of these changes. The appearance of an article proposing some shift in line with the new military doctrine of the Warsaw Treaty Organization would set off protests that would reach the Party leadership and Gorbachev himself and only then be resolved. This was the case with the appearance of the Kokoshin and Larionov article on Kursk and its de-escalation ladder for force postures in Central and Eastern Europe.24 The subsequent end of the Cold War, the collapse of the CPSU, the breakup of the Soviet Union, and the emergence of a new Russia proclaiming its commitment to democracy and a market-driven economy have raised the question of the changing relationship among military science, the social sciences, and forecasting in military affairs.

If in the past the core issue before Soviet military forecasters was a future war colored by the Party's ideological assumptions about the threat and the direction of socio-political, economic, and technological change, the post-Soviet era is dominated by concerns about the stability of the army itself, war prevention, the emergence of geopolitics as a new field theory, and the problem of conflict management in the near-abroad.25The latter served as the tool for the definition of dangers arising from the great transformation and the ensuing ethno-national conflicts affecting the post-Soviet world, the measurement of threats, and the attempt to come to grips with the processes of internal transformation, resolution of the relations between Russia and the other successor states, and the determination of integrating Russia into a world order. In the area of military forecasting there has been a shift away from glasnost and civil-military collaboration toward a renewed emphasis on secrecy and stratagem. Protecting national, political, economic, and military interests in an unstable world requires secrecy, even as the same authors acknowledge the requirements of a democratic society for some debate and limit glasnost.26

One factor driving this concern was the fact that military theorists and social scientists were also trying to come to grips with a revolution in military affairs, which, on the one hand, had been well anticipated as a technological process by Soviet military science, but, on the other hand, threw up a set of challenges to an overextended Soviet system and helped to bring on its collapse. The revolution in military affairs continued, however. The end of the Cold War removed the ideologically assumed threat of general war with a global coalition of hostile powers, led by the United States, and by that transformed the immediate threat to more general dangers.27 Instead, it is the consequences of the collapse of Communism, the break up of the Soviet Union, the socio-economic decline and political instability that take top priority in the assessment of dangers. The evaluation of such factors now guides efforts to manage ethno-

national conflicts to prevent them from becoming local wars and, by that, generating a renewed threat of general war. If in the past the debate over such issues was confined and concealed within the upper reaches of the CPSU, now they are the topic of robust, open debate and political maneuvering. The senior military leadership complained of a general criticism of the army in the press. Their complaints about the military's loss of prestige mounted as the public became more aware of the armed forces' problems. As Colonel V. Cheban noted, the Army by the early 1990s saw itself under attack and isolated:

A wave of criticism with special force broke over the Armed Forces in the years of Perestroyka.

> The hurricane of charges and accusations simply did not provide the positive evaluation, which was necessary for treating the serious illnesses of the army. We cannot know how this powerful attack would have ended, but stormy events abroad and within the country brought real corrections.
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> Events in the Persian Gulf struck the first decisive blow against these abstract pacifists, who thought that it was sufficient to recognize the uselessness of wars, to pronounce an anathema and . . . peace would reign forever. There, as is well known, the issue, in the final analysis, was resolved and finally resolved not according to the formulas of new political thinking, but according to the old, "antiquated" means -- the use of force. Indeed, all was organized according to the last word in military science and practice and cost a huge sum of money.
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> Sometime later the flame of armed conflicts burst out in the once unified and mighty power, now called the Commonwealth of Independent States. It is a paradox but also a fact: in the peace-making orchestra even now the solo of the military's brass horns stands out, and on the television screen the camouflaged uniforms shield the diplomats' tailcoats. And while the arguments over the army's size, the means of raising it, and the best ways of introducing military reform still have not ceased in Russian society, the question of the utility of its existence has practically ceased to be an issue.28

Christopher Bellamy took note of the renewed role of civilian experts with social science credentials in Russian/Soviet defense thinking and properly linked it to the tsarist experience with civilian experts. He focused on Jan Bloch and his six-volume study of future war and compared Bloch's contributions with those of Andrei A. Kokoshin, then a senior researcher at the Academy of Sciences Institute of the United States and Canada, and who in May 1992 became First Deputy Minister of Defense of Russia.29 Kokoshin did his most important early work on the US national security system and its methods of forecasting. During the final years of the Cold War he took an active part in the Soviet efforts to undermine SDI. During Perestroyka he became one of the most important voices for an alternative, political-military posture for the Soviet Union, writing in collaboration with General V. V. Larionov and General V. N. Lobov.30One of the key arguments advanced by Kokoshin and Larionov during this period was the relevance of professional military judgment that was outside Party control, especially the writings of A. A. Svechin, tsarist genshtabist [general staff officer] and Soviet voyenspets [military specialist]. Kokoshin supported Boris Yeltsin during the August Putsch of 1991 and was actively involved in seeking a security arrangement during the transition from Union to Commonwealth. In the Ministry of Defense, where he is the ranking civilian, he has been involved in military research and development, procurement, and foreign military sales.

KOKOSHIN AND THE FUTURE OF THE RUSSIAN NAVY

While Kokoshin's role in these areas has been diverse and wide-ranging, his thrust has been to try to save the high-tech portions of the military-industrial complex, which Russia inherited from the Soviet Union. In early 1993, less than a year after his appointment as Deputy Minister of Defense, he outlined what he saw as the contradictions in the research and development and production systems that Russia had inherited from the Soviet Union. This base, built upon a command economy, did not fit the new demands of a market economy and privatization. President Yeltsin had just decreed that the Ministry of Defense had the task of formulating a unified military-technical policy for the Russian Armed Forces. Declining state funding for defense industry and research and development created a crisis situation that risked making the relative backwardness inherited from the Soviet system in such areas as computer technology, stealth materials, radio-electronic warfare systems, night vision systems, information-control systems, and a range of laser technologies a matter of long-term inferiority (5-10 or more years) in comparison with the US and other developed countries.31 Kokoshin turned his attention to forging the link between these efforts to fashion Russia's "unified military-technical policy" as part of Russia's response to the Revolution in Military Affairs. One of the first areas to which he devoted his efforts was to save the Russian Navy and its infrastructure. Russia possesses the lion's share of the great oceanic navy that Admiral Sergei Gorshkov spent thirty years building to contest American sea power during the Cold War. Confronted by an opponent with a vast, oceanic navy, a global fleet infrastructure, a well-developed tradition for "blue water" naval combat, and an advanced technological base, the Soviet Navy, deployed in isolated maritime theaters and with a continental tradition of supporting the Soviet Army on its maritime flanks, had to innovate to create and sustain a credible, modern force. With the end of the Cold War and the breakup of the Soviet Union that navy poses a heavy burden, which cannot be sustained for lack of funding. Moreover, it does not fit the new naval requirements of Russia. Finally, the Russian Navy has lost key portions of its infrastructure in two theaters, i. e., the Baltic and Black Seas. A well-developed methodology for forecasting the role and future requirements of the Soviet navy in state defense is now irrelevant because of geopolitical changes facing Russia.32 Kokoshin played a leading role in organizing a military-scientific conference in St. Petersburg in March 1993 devoted to the topic of just what sort of navy Russia would need. The conference brought together sailors, engineers, naval architects, analysts, and historians.33 The sources of Russia's naval decline were attributed to be "the fruits of the consciously-directed collapse of the economy of a unified, powerful state." The chief villains of the piece were the so-called "social-science stars" who had attacked the utility of the navy. Zaborsky stressed the need for the technical infrastructure, industrial base, and ship yards required to sustain naval modernization. While invoking Mahan and Stolypin to support a sustained national effort, he warned of the danger of another "Khrushchevite pogrom" to gut the Navy. Zaborsky called for the articulation of a truly naval portion of Russian military doctrine, and advocated the creation of a Russian Naval Ministry.34 The essays in this volume also make clear that the question of a balanced fleet, i. e., what resources will go to each branch of the navy -- strategic submarines, attack submarines, surface warships, land-based aviation, and carrier aviation -- is very much a matter of rationality being in the eye of the beholder, depending upon his own interests. In summing up the results of the conference for the press, its organizers emphasized several key points: 1) Russia had to remain a major naval power to protect its maritime interests; 2) the Navy needed a "law on the Navy of the Russian Federation" to guide its further development; 3) the Ministry of

Defense, as a consequence of the transition of Russia's strategic deterrence forces to sea-based systems, should increase the naval budget to 25-30% of the total defense budget; 4) the Navy has a vital interest in the creation of "an independent state organ" within the Defense Ministry to carry out naval financing, planning, and material support; 5) the Navy should conduct a complete and integrated study to find the most efficient way to scrap surplus hulls; 6) the search for means to protect and develop naval research-and development and production facilities, including their trained specialists, must be a top priority; 7) the introduction of plans for warships of the latest designs; and 8) the enactment of rules and legislation covering contracts for the building of new ships.35 In answer to what sort of navy Russia would need in the future the conference organizers emphasized a new "Russian naval strategy" along the lines of "deterrence and cooperation" and called for a shift from quantity to quality under the slogan "qualitative sufficiency of armaments." The authors also called for a major effort to mobilize public opinion in support of the navy, pointing out the role of official and unofficial publications and radio and television programs organized by Public Opinion in Defense of the Navy. It also called for the re-institution of the tsarist tradition of annual reports on the status of the navy, which began in the 1850s under General Admiral Konstantin Nikolaevich.36

In a review of the proceedings published in Voyennaya mysl' shortly after the conference, its author applauded the effort and pleaded that all would be done for strategic forces and for the completion of selected surface units, i. e., the carrier Admiral Kuznetsov and the cruiser Varyag. He warned, however, that priorities had to be set and the Ministry of Defense could not fund orders for all defense plants and research institutes. He concluded: "It is necessary to think about the organization of the navy's long-range support by public opinion."37 Such calls to mobilize public opinion in support of the navy, of course, take on a new meaning under the new political circumstances in Russia. These issues become partisan political matters.

On the one hand, this mobilization relies on the tried and true instruments of the Soviet era: Navy Day, which is celebrated on July 31 and the associated public declarations and speeches. In 1994 President Boris Yeltsin promised: "But now, in this difficult time of transformations, the state will not forget its sailors. I am convinced that a splendid future lays ahead of our Navy. Its heroic traditions will never be cut short."38Such sentiments may be heartwarming, but the funding for the navy and, therefore, its future depends upon support in the Russian parliament. In 1994 Morskoy sbornik began a new section, "The Duma on the Navy" [Duma o flote], in which leading legislators were asked to comment on the Navy and its future. One of the first commentators was V. V. Zhirinovsky, the Chairman of the Liberal-Democratic Party in the State Duma. Zhirinovsky's electoral success in the December 1993 parliamentary elections and his extreme nationalism, authoritarianism, and imperialism have made him a natural choice of those seeking political support for a navy in decline and under threat of marginalization. Zhirinovsky predictably called for the maintenance of a powerful navy to prevent Western imperialists from stealing Russian resources with the help of their allies, the Russian democrats. Putting an end to such theft and the destruction of Russian military power, a government of Russian patriots will inevitable face a confrontation with the West and will have to expand defense spending to meet the challenge. In the meantime Zhirinovsky pledged his party to do all it could to protect the Navy and the Army from further budget cuts.39

But the issue of funding future naval programs is by no means a matter of a blank check for the LDPR and its leader. There are priorities for funding in keeping with a long-range national strategy. Thus, in October 1994 Zhirinovsky, as the Chairman of the Liberal-Democratic Party in the State Duma, presented his party's "conceptual views on the problems of Forming the N[avy] of the R[ussian] F[ederation], Its Warship Composition and Construction Programs" to the CinC of the Russian Navy, Admiral F. N. Gromov. The LDPR's concept paper noted the complexity of naval force planning. It cited the lengthy period involved in design and construction of warships compared with the demands of changing missions and tasks arising out of political changes. Defining the current period as a postwar era, the concept paper pointed to three decisive factors influencing postwar Soviet naval development:

- The views of the political and military leadership on the nature of future war and the role of the navy in it;
- The experience of employing navies in the Great Patriotic War (GPW) and in the Second World War (WWII);
- The scientific-technical revolution in the navy.40

The authors point out that Admiral Gorshkov had by the late 1970s parlayed the navy's secondary role into "national path for naval development," which emphasized using the naval forces to neutralize the US Navy in the initial period of war. This approach reduced the importance of supporting the Soviet Army on its maritime flanks to a secondary function. With the end of the Cold War the tasks of Russia's Navy have changed to fit new conflict scenarios. Taken together,these tasks include: defeating enemy aggression against Russia, maintaining Russia's sea lines of communications and maritime interests, protecting Russia's coast line and maritime economic zones from illegal exploitation and smuggling, and support of strategic stability in the world. The authors concluded:

> RUSSIA'S NAVY must in ANY VARIANT of the development OF A CONFLICT COUNTER THE AGGRESSION of a more powerful naval power IN COOPERATION WITH OTHER BRANCHES OF THE ARMED FORCES OFF ITS OWN SHORES and be capable OF EXECUTING AN ACTIVE STRATEGY AGAINST A WEAKER ENEMY IN ANY REGION OF THE WORLD, as well as participate with its S[trategic] N[aval] N[uclear] F[orces] in the policy of NUCLEAR DETERRENCE [capitalization as it appears in the original Russian text].41

While rejecting Gorshkov's oceanic navy, the LDPR program called for a balanced navy of 120 submarines and about 150 large surface combatants of about 1.2 million tons displacement by the year 2015.42 The program emphasized the effectiveness of aviation against maritime targets and supported the maintenance of Russia's conventional carrier and the construction of full-scale, catapult-equipped carriers of 70,000 tons at a rate of one every seven years.43

The current situation confronting the Russian Navy has been described by one of the forecasters involved in the 1988 book on naval forecasting, Captain 1st Rank Boris Makeev, as one of declining sea power. He views the maritime threat situation from forward-deployed U. S. and NATO naval forces with advanced deep-strike, precision systems as much the same but conditioned by a decline in Russian naval power from oceanic to maritime/ littoral.44 What is,

however, also worth noting is that the emphasis is upon Russia's naval strategy, i. e., a distinct set of roles and missions not defined by the Russian Ministry of Defense and General Staff. Recently Rear Admiral V. Aleksin, a senior member of the Main Naval Staff, and Captain 1st Rank (retired) E. Shevelev, a leading expert in systemology [sistemologiya] and the head of the military section of the recently-organized, International Informatization Academy, presented their own answer to the systemic crisis facing the Russian armed forces and addressed the problem of saving a credible navy from those committed to getting rid of the navy as an unnecessary luxury. The authors offered a methodology based on systems analysis that would guide naval modernization and provide a justification for the sustainment of a high-cost, long-term investment in naval construction. In another venue, a popular, independent newspaper, the authors put their case more dramatically: "Without a powerful Navy Russia cannot exist."45

Their method, as laid out in the article in Morskoy sbornik, is the same as that presented by Shevelev in a two-part piece published in Voyennaya mysl' in the spring of 1994, including a representation of the "mechanisms of interactions of one and another combat systems of the sides in naval warfare."46 Shevelev has consistently asserted since the end of the Gulf War that the Revolution in Military Affairs requires the creation of a new military science.47 In that article Shevelev made a case for a "systemological approach," what he had earlier called "a theory of combat systems," as the foundation for a reformed military science that will serve as "a common-national and international language for specialists and scholars, of governments and the military leadership from all countries . . . ." He spoke of "a progressive methodology, instrument, and research technique for the study of military theory and practice."48 Shevelev compares this new approach to what he calls the traditional approach, which might best be described as force-on-force modeling employing conventional operations research techniques, correlation of forces methodology, and combat norms. The new approach stresses the study of systems, seeks to understand the parts through the whole, relies on the systematic analysis of combat processes, employs simulations to model the opposing sides, uses the function criteria of combat systems in determining the probability of their translation into corresponding functional conditions, and depends on the use of advanced computer techniques employed to support command-staff exercises and war games.49 In this view the best way to understanding the dynamics of the Revolution in Military Affairs is by approaching it as a problem of system of systems. Soviet naval analysts drew attention to the increased importance of automated command and control and electronic warfare in their studies of the Falklands War.50 By the late 1980s Soviet naval specialists anticipated a radical leap in the role of these system in future combat at sea and against the shore. As V. S. Pirumov and R. A. Chervinsky observed in 1987, the capacity of such systems to influence combat had created a serious problem with the correlation of forces methodology employed to forecast the combat "results: "When modern control and electronic warfare systems and equipment are used, the correlation of forces of the sides in a battle or operations must be evaluated with regard for the presence of ECM equipment."51In the aftermath of the Gulf War Captain 1st Rank Shevelev and General-Lieutenant Slipchenko of the Academy of the General Staff proclaimed that its results supported the importance of a systems approach for the further development of military science as it dealt with the implications of the RMA.52

In applying this method to naval affairs in this case, however, the content is quite different from the form. In the past Shevelev has written about global models and the need for international

cooperation and even a "unity of views of presidents, governments, and leaders of departments -- in the first place the military . . . ."53 In their recent discussion of the Navy and the RMA, however, Aleksin and Shevelev focus on the impact of economic decline and budget cuts on that service in particular. Citing the rapid decommissioning of warships, the moratorium in capital naval construction of the last several years, the loss of axperienced naval personnel, and the collapse of the fleet's infrastructure, the authors state flatly "It is clear that poor knowledge of the history of our Motherland, including its most recent [history], explains the ease with which legislators and the Administration today decide vital naval issues, and mainly, their delicate and touchy part - the status and support of naval personnel."54After an analysis of planned naval developments in the US and among other NATO members, the authors concluded that Russia should build a Navy based on the demands of information warfare.55 The actual dimension of this fleet by the year 2015 would be 440 vessels with about half of the ships oceanic in their operational characteristics. On the key issue of balance, the authors stress both strategic and attack/strike submarine forces, including 70 SSNs, of which 45-50 would be combat-ready and include not less than 20 equipped with cruise missiles to attack cruise missile warships and carriers. Russia would continue to acquire conventional submarines for a wide range of missions because of their low cost.56 With regard to surface warships the authors were quite ambitious in defending the investment in carrier aviation and called for the building of 5-6 "aircraft carrying ships" with a displacement sufficient to handle 70-80 aircraft and helicopters and an additional 5-6 "convoy aircraft carriers" with 30-40 aircraft and helicopters to protect sea lines of communication.57 The authors justified this entire naval program as the only way in which Russia can remain a great power in the twenty-first century.

General (retired) M. A. Gareev, the President of the newly-founded Academy of Military Sciences and the former Chief of the Main Directorate for Military Sciences of the Soviet General Staff, in his recent book on the contours of future armed conflict was much less supportive of such a naval building program. He mentioned strategic, ASW, and attack nuclear submarines and missile-armed naval aviation as the main forces of the leading naval powers. He mentioned the role of carriers in US, British, and French navies and plans for further construction. On Russian carrier aviation he was less than enthusiastic:

> Regarding Russia, it inherited from the USSR several aircraft-carrying ships with aircraft of limited range of action (up to 150-200 km) based on them. In the next few decades it is very unlikely that it will build strike carriers.58

In place of the investment in carriers proposed by naval proponents, Gareev advocates acquisition of air cushion, wing-in-ground, and hydrofoil vessels, linked to research on new sources of energy for propulsion systems. The creation of wing-in-ground vessels, like the ekranoplan, with speeds like aircraft are given high play. The emphasis is on naval forces for maritime theaters and technological advantages that could give small combatants significant advantages over the large, oceanic warships of the major naval powers.59 The launching in August 1994 of the world's largest air-cushion vehicle, Zubr, at the Almaz Ship Yard for service with the Baltic Fleet as an amphibious warfare ship with 250 tons carrying capacity gives a concrete hint at what trends Gareev would like to see continue. But it also suggests continued General Staff and Ministry of Defense support for theater naval forces to support the maritime flank of the Army.60 Gareev also notes the possibility of creating boats that fly under water with

the speed of a plane. He speaks of building semi-submersible vessels -- tankers, landing craft, submersible cruisers and carriers -- which he describes as stealth warships with very small surface signatures. Such types of vessels are likely to be much smaller and less vulnerable than a full-size attack carrier, which Russia cannot afford and would take a great deal of time to procure, make operational and render combat effective. As opposed to a symmetrical response to the strike threat from carrier aircraft and cruise missiles, Gareev is looking to new technology to provide an asymmetrical answer through concealment or at least a reduced signature. The bottom line of this argument can be summed up as follows: geo-strategy must dominate defense procurement. "One cannot ignore the geo-strategic situation of states. The circumstance that Russia remains a continental power, and the USA a maritime power must influence the structure of the armed forces, including strategic nuclear forces."61 This is a traditional General Staff argument for a small navy.62In a brief commentary on Admiral Gorshkov's approach to dealing with a wide range of missions associated with a global war with the US and its allies, Gareev points out that in every case, Gorshkov looked to naval systems to handle such missions as cutting sea lines of communication to Europe or disrupting the flow of oil from the Middle East. Gareev argues that this response ignored other less costly and more effective means, such as the deployment of tank armies in Turkmenistan and the Trans-Caucasus to threaten the very fields themselves.63This criticism suggests a position that in this time of troubles the Russian Navy is a luxury. This service will have to make do with a smaller share of reduced resources.

This situation may explain exactly why naval officers, industrialists, and naval advocates have made common cause for an independent agency to present the navy's case to the political leaders. Morskoy sbornik, the leading professional naval journal in Russia, which published the article has left no doubt about its own priorities. Its masthead, which once carried submarines and land-based aviation and the Soviet naval ensign, now carries the profiles of a ship-of-the-line and a Kuznetsov-class carrier. The two flags are the tsarist naval ensign with its blue cross of St. Andrew in the foreground and in the background a nondescript ensign with a bottom blue stripe like the Soviet naval ensign but without its Soviet emblems. Russian naval officers and ship builders have made the Cross of St. Andrew the symbol of their crusade to save the navy by asserting its claim to greater autonomy and independence.

THE ARMY AND CIVILIAN ANALYSTS

As this discussion of the debate over the Russian Navy for the next century suggests, Bellamy's linkage of Bloch and Kokoshin as civilian analysts raises the larger question of continuities and changes in the context of Russian civil-military relations and in the specific area of military forecasting over the last century. While Kokoshin was a civilian expert working closely with military officers to understand the external threat to the Soviet Union, Bloch was a banker and railroad magnate with close ties to the Ministry of Finance. In the last decade of the nineteenth century Bloch asked whether military power was still relevant to resolving major clashes of interests among states. That question was at the heart of Gorbachev's disengagement and demilitarization efforts. While it is still being debated in Russia, the tone of the discussion has changed.64 Daniil Poektor, a retired colonel, senior security analyst, and veteran of World War II, in his collaboration with General Jochen Loeser, a retired West German general officer and veteran of World War II, echoed Bloch in his call for internationalization of conflict management and resolution. Their first book carried an introduction by General of the Army V.

N. Lobov, in which he spoke of the search for mutual security in Europe on the basis of studying ways to prevent wars in the nuclear era.65 While the authors expressed graver concerns over the immediate prospects of war in the Persian Gulf in their first volume, their second volume treated the Gulf War positively as the juncture of two trends that created a new type of war: the mass employment of advanced weapons systems and political restraint in the application of such advanced combat power to limited political ends. They spoke of a new relationship between war and politics, where politics controlled and limited the use of force, expressed as the paradox: "force seems to fuse with politics [and] in some sense itself is transformed into politics." [sila kak by slivaetsya s politkoy, v nekotorom smysle sama prevrashchaetsya v politiku].66 This was, according to the authors, the best way to prevent local conflicts from escalating into major wars. In the absence of such political control the road to military disaster and political ruin lay open. There were so many examples of such outcomes in the modern world.

> There is a continuous chain of terrible miscalculations in the use of military power throughout the entire course of the century. And all of them have discredited militarism and could only lead to the conclusion that militarized methods must no longer direct politics or reliably maintain security.67

The military-technical revolution has to go hand-in-hand with an intellectual revolution.

> It is necessary to decisively raise the authority of international organizations devoted to world security, to give them more rights and capabilities to put a stop to such [local] conflicts, including the use of force. To make sanctions against their initiators and instigators more severe. The great powers must activate their diplomatic efforts in crisis regions. 68

Such sentiments have lost much of their appeal in Russia over the last several years. Perestroyka is discredited. Ethno-national conflicts and local wars haunt the successor states to the Soviet Union. And the authority of international organizations has been called into doubt by frequent failures. The politics of force now seem to have much more relevance for defining the international environment in which the Revolution in Military Affairs will transpire. The very first issue of the newest military journal of the Russian Armed Forces, Armeyskiy sbornik, raised just this question in an article devoted to the topic, "Does Russia Need an Army?". It answered that question with a resounding yes. The author took the question of the place of the army in Russian society to 1900 and noted that extremists had undermined the position of the armed forces on several occasions, at the turn of the century, following the Russo-Japanese War and during Perestroyka. The author went on to make a case for a world in which the use of force to protect national interests is a necessity of national policy, given the threats posed by conflicting national interests. "At that stage the means of achieving state goals begin to play the main role. To decipher the 'genetic code' of war or armed conflict means to determine when and why in the resolution of disputed issues first priority has been given to the use of military power."69

This continued attention to military foresight and forecasting has been noted by Western analysts, including the author of this paper. Some, notably Mary Fitzgerald, have argued that the process continues in an attempt to master the demands of "sixth generation" warfare. She sees a consensus over short-term measures, mid-term adjustments, and long-term objectives among

Russian civilian and military leadership over the demand that Russia acquire "the potential for waging air-space war and competing in the Military] T[echnical] R[evolution] . . . ." In an extended survey of the recent literature on trends affecting future warfare, Fitzgerald highlights the critical changes necessary to shift from a quantitative military instrument to one based on quality and emphasizes the role of air-space and information warfare in contemporary Russian military forecasting. Russia's national leadership clearly perceives these military capabilities, according to Fitzgerald , as "Russia's main guarantee for preserving great-power status."70 In this view there is no ambiguity about the relationship between military power and national regeneration. The problem is one of technological innovation, doctrinal adaptation, and structural adjustment. The military-technical revolution is a matter of evolution. Foresight can be kept within the preexisting bounds of military-technical matters, inherited from the Soviet period. Military-political issues, which both framed external threats and assessed internal capabilities and were the domain of the Communist Party until Gorbachev's perestroyka, are now assumed to have been resolved by "a strong civil-military consensus reflecting a continuing, disproportionate emphasis on military power as the basis for Russia's status in the international arena, and a deep determination not to stand aside while other countries forge the military-technological revolution that will usher in the ‘sixth generation' of warfare."71 But this conclusion reduces a complex process to a single variable. Military power is equated to technological modernization. As the author has argued elsewhere, the General Staff's commitment to force modernization on the basis of the military-technical revolution has strong antecedents in the Ogarkov era and was renforced by the Gulf War. However, since the late stages of Perestroyka there has been a good deal of division within the military over the importance of this task, as against other requirements, and serious divisions among forecasters regarding the best methodology for dealing with the radical changes in the military-political and military-technical sides of the question.72The divisions within the military have increased and become even more politicized over the last four years.

Russian authors themselves have pointed out just how great are the dangers involved in such one-sided analysis. Their focus has been on formulating a national security strategy that would strengthen strategic stability in inter-state relations. They have sought to develop a methodology to deal with the military factor in such a national security policy, taking into account the costs and benefits based on assessing the level of effectiveness of the armed forces in carrying out their decisive tasks in wartime against the costs of creating and sustaining such forces. Reviewing the existing methodology, the authors assert: "In addition, a substantial revision of existing M[inistry of] D[efense] methods to take into account a series of new factors of a non-military nature, which influence the contemporary situation in the world, is necessary."73 These efforts have relied on military operations research and systems analysis to resolve the issue of size, structure and quality of force needed to deal with specific regional threats. One such effort sought to determine the optimal composition of a grouping of ground forces to secure a given level of military security in a region.74But the situation confronting Russian military forecasters makes these efforts difficult in the extreme.

The situation in Russia seems more chaotic and confused than their analysis suggests. Even the best-case assumptions of the techno-analysts cited suggest some very serious problems in making the transition that they advocate. The radical changes of the last decade smashed the ideological framework within which Soviet military forecasters worked. They have lost the political guidance of Marxism-Leninism, which served as a field theory supposedly uniting the

social-sciences, natural sciences, and military science. They lost the Party as the guiding vanguard of society. They lost the institutions of the centralized command economy, structured to mobilize and sustain total war. They lost their fixed image of the enemy and their explanation of the sources of conflict and threat. They lost an empire abroad, saw their union dissolved, and even lost the state to whom they had sworn allegiance. They have seen their national economy collapse, industrial production decline, defense industries wither, and have watched the rise of ethnic conflict on their borders and within Russia itself. Their very state remains unstable with weak institutions, corrupt officials, and the arbitrary use of power. The military is under-funded, cannot sustain the social protection of the officer corps, has faced a serious shortfall in conscripts, lacks the resources to train, conduct exercises, and even maintain existing equipment in operational condition. The prestige of the military went in a decade from being the victorious heirs of the Great Patriotic War to the source of many of the problems that brought about the final collapse. Ongoing commitments of troops to local conflicts are actually higher now as a percentage of troops under arms -- with Tajikistan and Chechnya under way -- than during Afghanistan. And, as Afghanistan revealed, serious problems in the field of military medicine exist in sustaining a combat force in the field.

In short, the Russian officer corps is living through a period of crisis and collapse that none predicted and only a few foresaw in broad outline. This contradiction between the existing objective situation confronting the Russian state and its military and the foresight of its military forecasters needs to be explored in depth. There is some evidence that a civil-military consensus does not exist, making the issue of military forecasts' significance for policy much less certain. Western forecasts on Russia's future have been ambiguous, emphasizing divergent lines of future development ranging from Russia's successful integration into the developed world, a continuation of muddling through, to the emergence of militarism and an authoritarian order.75 The attempt at democratic construction and economic reform culminated in the political crisis of 1993 and the assault on the White House and in the outcome of the December elections with the strong showing of Zhirinovsky's Liberal-Democratic Party and other nationalist and Communist authoritarian movements.76 Recent assessments have been pessimistic with regard to internal stability and development. Charles H. Fairbanks, Jr., looking at recent events connected with the war in Chechnya, called Russia "an increasingly scary and strange place."77 His emphasis was on the increasing disintegration of public order and decline into anarchy. It is an assessment shared by some of the most prominent proponents of reform within Russia's government. Sergei Yushenkov, a political officer by training, a colonel, and member of the "Russia's Choice" fraction in the State Duma, in his capacity as Chairman of the Duma's Defense Committee has been an outspoken critic of the military intervention in Chechnya. Yushenkov has asserted that the initiation and conduct of operations in Chechnya revealed that there had been no effective reform of the armed forces. Relations between the army and society were unstable in the absence of effective civilian control and parliamentary oversight over the military.78

In the realm of forecasting Chechnya has had an obvious impact on civilian specialists as well. Nikita Moiseev, one of the leading Russian experts in applied mathematics, military cybernetics, and software development and a prominent proponent of bringing the Soviet Union and Russia into the information age, rejected his veteran's medal for the 50th Anniversary of the victory over Germany because of the army's conduct in Chechnya and stated that his army had not deliberately attacked women and children.79 During Perestroyka Moiseev had spoken of the

need to get the Soviet Union into the information age and had stated that the chief obstacle to that process was the militarization of society to fight a mass war on the model of 1941-1945.80 That system had fostered a producer's monopoly, which would not respond to consumer demand and could not innovate, and lead to the Soviet Union's economic and technological backwardness.81 In late 1991 Moiseev spoke at an open session of the Academy of Sciences saying that the Soviet Union was dead and that there was no turning back and that a major effort had to be mounted to turn Russia into a living political and economic organism. Moiseev later wrote President Yeltsin offering support from the Academy of Sciences in this process and was named head of a newly-created Committee for the Analysis of Critical Situations and Projects for State Action. But the Committee was never funded. When Moiseev asked for funding from the President's office he was told to ask the Academy of Sciences. No funds were forthcoming. Moiseev was advised to turn his attention to "basic science." He summed up his own frustrations in the following manner. "But damn, when the house is on fire, one must put out the flames and not be involved in basic science."82 In the end, even an unfunded, voluntary effort collapsed for lack of funding.

In his work on the changing nature of armed conflict over the next 20-25 years, General Gareev speaks of the exercise of military foresight as a necessary but difficult and frustrating activity. The chief imperative behind the exercise of foresight is to push conservative, bureaucratic military institutions to address the fact that the next war will be different from the last. One seeks to grasp the direction of change in all aspects from the causes to the nature of armed conflict. But complete success in this endeavor is quite unlikely.

> History knows many sagacious predictions regarding separate aspects of future war, however, to foresee correctly the nature of new armed conflict in its entirety has practically never been achieved.83

This makes the task of the military forecaster, like the labor of Sisyphus, one of unending toil and no reward. Yet, the task is necessary since foresight is a necessary ingredient to the successful resolution of a host of problems associated with defense policy but also "with the goal of preventing armed conflicts and wars."84 Gareev argues that it is much better to make mistakes in military forecasting than to fall back upon the assumption that "to peek at the future of military affairs is impossible."85 Studying the problem of future war is a matter of numerous, repeated attempts from diverse perspectives in seeking a forecast with fewer errors.

A RECENT RUSSIAN MILITARY FORECAST: DELPHIC OR CASSANDRIAN?

Gareev's invocation of Sisyphus with its roots in Greek mythology and his call for numerous and frequent efforts to foresee the contours of future armed conflict bring the problem to the relationship between the forecast and its reception. Sisyphus it should be remembered was punished for his cunning, which angered Zeus. And cunning or stratagem, as General V. N. Lobov, the former Chief of the Soviet General Staff, reminds us, has been at the heart of military theory and practice.86 The history and legends of ancient Greece are replete with exercises of stratagems. Going hand-in-hand with such efforts were attempts to foretell the future. In many of these cases the oracles' predictions are Delphic or ambiguous and open to diverse interpretations

by human actors. King Croesus of Lydia is told by the Pythoness of Delphi that if he goes to war with the Persians a great kingdom will be destroyed. He went to war and a great kingdom was destroyed, Lydia. During the Persian invasion under Xerxes I the oracle told the Athenians to trust their defense to "walls of wood." Themistocles interpreted this to mean to evacuate the city and rely on Greek naval power, leading to the Persian defeat at Salamis. In short, foresight is the precondition for the exercise of cunning, but the interpretation of the foresight is in the hands of human intellect. For the forecaster the greatest nightmare remains that of accurate forecasting which others refuse to accept. This is the tragedy of Cassandra in Homer's tale of the Trojan War. The daughter of King Priam of Troy, she gains from Apollo the ability to foresee the future but then refuses him her favors. Angered by this deceit, Apollo, who could not take away her powers to foresee, condemns her to being not believed by other humans. In the Athenian polis of the fifth century BC tragedy, as patriotic rite and religious festival, became a form of public discourse, where imitation, praxis, and theory served a didactic purpose: inculcation of civic virtue and the enhancement of the citizen audience's capacity to act with foresight and judge with insight.87

Among those who have sought to practice foresight in military affairs, J. F. C. Fuller as the proponent of mechanization clearly belongs to the Delphic tradition. His pronouncements were open to a wide range of interpretations, fell on fertile ears in a number of militaries, leading to diverse responses. In some cases the response was one of half-measures. While instrumental in founding the Royal Tank Corps, Fuller did not inspire a British mechanized army. In others it led to distinctively radical changes, as in the case of the German Blitzkreig and Soviet deep operations, both of which drew upon and developed Fuller's ideas. Among those who proved modern Cassandras, Jan Bloch, Polish banker, advisor to the Russian Ministry of Finance, and railroad magnate, proved a prophet without honor in his own country and elsewhere. His analysis of the growing power of the defense in mass, industrial war and his linkage of attrition and social collapse in a protracted war appealed only to a few pacifists in the decades before World War I. In Bloch's case his forecast simply asked soldiers and statesmen to grasp the interconnections among industrial production, mass war, modern technology, and social instability before practical experience had made those connections self-evident. In short, he asked too much of civilian and military leaders.

In looking at current Russian military forecasting it is at least worthwhile to ponder the Delphic and Cassandrian dilemmas. The recent founding of the Academy of Military Sciences, composed of retired officer-analysts, is a case in point. The academy, which has recruited its membership from officers forced to retire by the current reduction in force, has sought to mobilize this expertise "to create a military reform blueprint which is integrated and elaborated on a statewide scale rather than [solely] within the Defense Ministry and which affects not just the Armed Forces but state defense structures as a whole."88 Among the tasks of the academy are those associated with "the nature of future warfare, methods for the combat employment of new branches of the armed forces, their provision with equipment, the direction and progress of military reform."89While sponsored by a wide range of defense-related associations, the activities of the academy are supposed to be self-funding and based on contract research. These efforts will have to compete with existing forecasting institutions and seek bureaucratic consumers willing to fund their studies in a time of triage economics. This, in turn, leads to a series of basic, but interrelated issues.

To what extent are the current forecasts about the military-technical revolution ambiguous with regard to the contours of modern armed conflict? Do they agree sufficiently to provide a consistent vision of the evolution of armed conflict out into the second decade of the next century? How well can national institutions interpret these forecasts and cast national policy to meet them? How central are these concerns to decision-makers' immediate priorities and are they likely to be supported by the resources, planning, and sustained commitment to have them realized? The answers to these questions are hardly known by the actors themselves, much less clear to outside observers at this time. In times of extraordinary instability and chaos, forecasters, especially military forecasters, face daunting challenges not only in the process of finding a suitable methodology and doing the forecast, but also in having their forecast accepted and used by decision-makers.

Instead of seeking a definitive answer to all these questions, this paper takes a more modest approach. It will now address the forecast developed in General Gareev's recent book and seek to analyze its author's assessment of the environment for military forecasting in Russia today. This choice is not arbitrary but is based on a fundamental methodological assumption: to understand and assess the forecasting process, one needs to address the forecaster, whether individual or institution. Moreover, General Gareev is a preeminent military theorist and leading figure in the development of Soviet military art. His connections to the Soviet and Russian General Staff are extensive.

General Gareev brings a unique perspective to the problem of military foresight. Born in Chelyabinsk, Tartarstan, in 1923, he joined the Red Army in the late 1930s as a cavalry man. He is one of the few officers who can say today that he literally served in the pre-mechanized, mechanized, and post-mechanized military. His active military career, which included combat service during the Great Patriotic War with the Western, Third Belorussian, and First Far Eastern Fronts, lasted more than fifty years. He has commanded and held senior staff assignments and was the chief Soviet military advisor in Egypt in the early 1970s and chief military advisor in Afghanistan in the late 1980s. In addition to serving as Deputy Chief of the Soviet General Staff and Chief of its Main Directorate of Military Science, he was also the chief originator of the operational maneuver group concept, which sought to adapt the mobile group to modern deep battle. He is the author of many books and articles on various aspects of military art and science.90

Gareev's approach to military foresight is heavily imbued with Marxist-Leninist categories and an attention to combat experience, exercises, maneuvers, and simulations and is conditioned by his vast personal experience. Taking a long view of military history, he sees both continuity and change in military art and recommends a dialectical approach to assessing the law-governed patterns [zakonomernosti] that shape dominant trends over time. This is a view that had strong backing within the Soviet Military prior to the Gulf War. The emphasis was on a rapid evolution and not revolution in military art.91According to Gareev, the easiest and most dangerous types of forecasts are those which fixate on a particular technology and assert its revolutionary impact, making all past military experience irrelevant. "In military affairs, while decisively opposing obsolete views, one must not let anything that might shed light on the future remain in contemporary caves."92 Gareev notes that other nations, including the United States, are trying to foresee whether there will be a "cardinal change of the means of conducting wars in the next

decades."93 The topic is, however, vast and involves assessing socio-political, and economic factors, the development of armaments on the basis of new technological discoveries, changes in human psychology, the relationship of society to war, and the methods of raising the armed forces. Fixation on one aspect at the expense of others will only lead to distortions in the forecasting process.

The subjects dealt treated in Gareev's recent work are wide-ranging and address both the political-military and military-technical aspects of the contours of future armed conflict. Contrary to some Western analysts who emphasize military-technological change in Russian military forecasting, Gareev turns his attention first to "possible sources and causes of wars in the future." This political revolution is the context in which the Revolution in Military Affairs will be played out, and it will define the future political contours of conflict. He offers a devastating critique of the political reformers of the Gorbachev era, who thought that ending the Cold War would bring about an end of conflict. Instead, the end of the bipolar world has brought about new sources of instability and conflict. He is equally critical of those who felt the Revolution in Military Affairs would give birth to and evolve into "a bloodless, peaceful, antiwar revolution."94But war remains a chameleon with the ability to evolve in ways that defy the best efforts of humanity to place it under political control.

> Such noble desires and enlightened hopes one could only applaud, but, unfortunately, they are not realistic: objective political, economic, and inter-ethnic contradictions, which one cannot always resolve by peaceful means, have acted and will continue to act. Quite often wars have begun even under conditions where both sides wished somehow to avoid it. And one must take this into account.95

Gareev sees two basic axes of future conflicts. One is associated with an objective set of trends connected with economic, demographic, and ecological crises, which he sees dominating the relations among states in the future. While all the world is capitalist or striving to be capitalist, uneven development and access to raw materials will shape the sources of future conflict. Russia for the sake of its own national development cannot afford to become a backward entrepot supplying natural resources, especially energy, to the developed West. In this regard he shares with the Tofflers a concern for survival [vyzhivanie]. The other source of conflict can be found in the future character of the international system itself. Gareev identifies three possible outcomes of the post-Cold War situation. The first is an effort by the United States to turn its current status as the surviving military super power into global hegemony. The second is the re-emergence of a bipolar situation based on a new US-Chinese axis with the nations of Eurasia and the Middle East drawn into the Chinese orbit. The third variant and one Gareev sees as most likely is the continuation of a multipolar world order with the reformation of old and the formation of new military-political blocs. The content of international security in all these models has not changed and remains Realpolitik and the use of military power to protect and enhance national interests.

> The reality is such that in this world, as in the past, they respect only those states that are powerful in an economic and military sense. Why does the entire world take into account the USA and why do its interests extend throughout the entire world and why is no other government able to act in a similar fashion? This cannot be explained by the qualities or

> desires of the leaders of these countries but by only one evident circumstance: The USA is the most powerful nation in an economic and military sense. And all countries have to take this into account, and, of course, to draw the necessary conclusions for themselves.96

Two particular areas of crisis raise the prospect of military confrontation for Russia. One is the line of contact between Russian influence and the Muslim world, of which the Tajik-Afghan War is the first harbinger. The second axis is that created by the expansion of NATO to the east. NATO's Partnership for Peace initiative has placed Russia in a difficult situation. To refuse to join means an acceleration of its isolation. To accept means that Russia would have "to limit its sovereignty in military-political questions."97 There is no prospect for Russia to join NATO itself, since that would only create more instability by extending a defense alliance to the borders of China. Gareev sees NATO commitment to expansion as a key source of instability, especially as it seeks to draw in new members in Central Europe. By setting the terms of the Partnership in terms of NATO military standards Gareev sees an attempt to divide Europe into victors and vanquished and to undermine Russia's market for arms. While not rejecting military-political cooperation with NATO in principle, he seeks another basis for mutual security in Europe involving expanded roles for the OSCE and the UN. He warns that expanded use of peacekeeping operations to resolve conflicts within states carries with it the risk of escalation into regional conflicts drawing in other states.98 Thus, Russia must seek a course that will prevent its isolation and sustain and enhance its interests in those neighboring regions marked by increasing instability, and this will involve cooperation and competition with the United States as a global power. This military-political condition, when connected with continued instability in Eastern Europe and Russian efforts to transform the Commonwealth of Independent States into a closer organization raises serious risks of confrontation with the West. The West sees the current loose Commonwealth as a guarantee of the continued independence and sovereignty of the other successor states and would look upon any imposed changes as a threat to European stability. Thus, the means and ends involved in the transformation of relations among the successor states have significant risks for Russia's security in Europe.

Gareev fits his discussion of the sources of future conflict into his treatment of military-technical progress and its influence on the nature of armed conflict. Engels' observations on the impact of economic development on the instruments of war are still relevant. But the equation now takes into account the burden of defense on the national economy and makes the forecaster's task much more difficult.

> But now, when military-technical progress has accelerated and weapons have become more expensive and impose an even heavier burden on the economy, this [the old approach] is inadequate. In contemporary conditions and even more in the future military science itself must determine the basic directions in the development of armaments, work out more concrete operational-strategic and tactical demands (a description of the weapons and equipment of the future). In all circumstances the influence of strategic considerations will constantly increase.99

Every army will have to take into account how to increase combat effectiveness without overwhelming the economic resources of the state and so seek a balance between strategic goals

and economic capabilities. The objective will be "to achieve a truly decisive concentration of scientific-technical and production efforts for the development of those types of weapons which will have decisive significance and neutralize or compromise long-range programs of other countries designed to achieve military superiority."100This, according to Gareev, is the core objective of current US defense research and development programs. In response to this situation Gareev recommends a strategy that takes into account those factors having the greatest impact on the development of armaments and military equipment. These he enumerates as:

- The absence of a global confrontation of two military-political blocs and the reduced possibility of a world war and the new nature of armed struggle arising out from this.
- The realistic assessment of possible military threats, armed conflicts and wars and the diverse tasks, which the armed forces will be expected to fulfill. -Concluded and proposed new agreements on the reduction and limitation of nuclear and convention arms.
- The geo-strategic position of states and the degree of their involvement in various military blocs.
- The economic difficulties and financial limits on military expenditures, which after the conclusion of the ‘Cold War' are all the more difficult to justify.
- The increasing significance of the criteria of effectiveness. The increased weight attached to dual purpose equipment.
- The development of the latest technology, making it possible to increase the qualitative parameters and effectiveness of new models of weapons many times.101

Taken as a whole, these factors place a number of limitations on the Revolution in Military Affairs, even as they assert its primacy in military-technical development.

With regard to the Revolution, Gareev identifies five basic directions: information processes as applied to reconnaissance, communications, radio-electronic combat, and automatized systems of control of troops and weapons; the perfection of high-accuracy weapons with primary focus on their offensive strike potential as the most effective and economical path for development; the development of the triad of offensive means with order of importance going to the most mobile components, SSBNs, and long-range aviation equipped with long-range cruise missiles; greater efforts to increase the survivability of weapons complexes and personnel by means of the latest means of concealment and protection from enemy attack by fire and radio-electronic destruction; and more intense development of techniques for combat training, especially the use of fire and equipment simulators, in keeping with the high costs of the exploitation and use of weapons and complex equipment.102Gareev returns to the theme of information processing as the means by which combat power can be focused not on the destruction of individual pieces of equipment but on "the disruption of their unified information space, sources of intellect, channels of navigation, aiming, and systems of communication of control as a whole."103

The discussion of weapons development that follows provides an almanac of new types of weapons and equipment, much of it based on new physical principles. The origins of these new weapons are to be found in the shift from industrial to information societies:

> A qualitative "technological explosion," widespread computerization and the creation of artificial intellect, the farthest development of microelectronics, of "thinking," intelligent weapons, the introduction into the process of control of automatized systems and robotics can to a significant degree change the material base of armed struggle.104

The impact of these innovations will be increased capabilities for deep battle. They included enhanced range and accuracy of missiles and increased speed, range, and altitude for combat and transport aviation. Having already noted the development of third generation nuclear weapons where radiation replaces blast as the primary agent of destruction, Gareev also emphasizes the increased capabilities of cruise missiles in terms of range, accuracy, and difficulty of intercept. He also notes the impact of the changing tempo of battle, which will make possible rapid action in the employment of combat systems in training and in the conduct of combat. Acceleration of the process of troop control among the various combat arms and systems is a top priority.105

Gareev provides a long list of new weapons that are under development. They include non-lethal means that incapacitate equipment and paralyze personnel. Psychotronic weapons, which he describes as a new type of weapon of mass destruction that works on the psychology of people for extended periods of time -- months and years are mentioned. Advanced research in genetic engineering and molecular biology has made possible genetic weapons that use man-made toxins to affect the genetic apparatus of living organisms Electromagnetic and infra-sound to attack the human organism, as can low-frequency vibrations to bring on epilepsy. Researchers consider the development of "geophysical weapons" to bring on earthquakes, tidal waves, destruction of the ozone, and cloudbursts in specific regions of the world. Gareev argues that the first generation of such weapons were employed by the US in Vietnam and that later models have the potential for greater effect.106

He devotes special attention to expanded capabilities in the area of "information warfare." In this area the target of the new means and methods is the destruction of a state from within, using the possibilities offered by modern means of mass communication. This is a synthesis of the yellow journalism of the early twentieth-century jingoism with the control of the media under totalitarian states -- using mass media to undermine the faith and confidence of the opposing population while mobilizing one's own and protecting it from enemy efforts to manipulate that opinion. Gareev, citing his colleague General Belous, may have gotten the tale of Hearst and the War with Spain wrong, but his attention on control and his emphasis on an information struggle that is already underway, foresees "a shift from the direct confrontation of armies to the methods of covert, undeclared warfare."107

Gareev links information warfare in local conflicts to the use of non-lethal systems capable of incapacitating combat formations but not affecting the civilian population. These include "lasers, microwaves, light and electromagnetic impulse, microorganisms, chemicals, computer viruses and other means." He also notes that the US and several other countries are working on "exotic technologies" with the potential for weaponization. These include powerful lasers to disorient pilots and take out navigation and control systems. "Lasers can be turned into generators of much less powerful impulses, which will not kill but only knock out living targets." He mentions the use of microwaves and non-nuclear electromagnetic impulse to disrupt the operations of radio stations, computers, and electronic systems.108 While he offers no more than a mere listing of

such weapons and their effects, the impression left is a wide range of applications of new technology to warfare in all its aspects.

Gareev follows this introduction with a treatment of conventional armament developments as they will affect individual services over the next 20-25 years. What is interesting here is that he leaves the existing structure of branches intact, i. e., treats air defense as a distinct area and emphasizes the need to strengthen its target acquisition and tracking capabilities against stealth aircraft and ballistic missiles. In the case of aircraft and air defense developments Gareev devotes considerable attention to dirigibles as a platform for radar warning stations to replace the ground stations lost with the breakup of the Soviet Union.109 As might be expected from an officer with extensive experience with ground forces, Gareev devotes considerable attention to those innovations which will affect land warfare. Here, he sees a continuation of past trends and emphasizes changes in artillery -- tube and missile -- which will not only bring about greater range but also affect fire norms and require a shift from a model based on probability-based kills to high-precision strikes by anti-personnel and anti-tank munitions and mines. Counter-battery fire has entered a new era in terms of effective destruction of opposing artillery systems. He discusses improvements in anti-tank system and calls attention to the role of ATACMS in the Gulf War.110Also on the basis of Gulf War experience Gareev discusses the need to improve IFF systems for ground combat to reduce fratricide and notes the importance of the space-based global positioning system to provide exact positions of friendly and opposing forces and to enhance precision strike capabilities.111

Gareev concludes his discussion of new technologies and their impact on combat by addressing the impact of nuclear and conventional arms reductions on the nature of armed conflict during a period of qualitative improvements in their capabilities. The discussion of nuclear forces abandons the concept of parity and talks in terms of sufficiency, defined as sufficient means to execute a retaliatory strike to inflict significant losses on the opposing side.112Radical reductions in nuclear forces associated with START I & II and the simultaneous modernization of conventional forces lead Gareev to consider the need, in the absence of any arms control or reduction agreements covering such systems, to call for the creation of strategic non-nuclear forces. These would have the capability of threatening the most important strategic targets of the opposing side. The development of operational-strategic and scientific-technical concepts for such forces would be complex, and Gareev speculates that the first such forces would be strategic aviation and then possibly land-based missiles and submarines, which have had their nuclear warheads removed. Such a course would open a new direction for an arms race.113

In his discussion of the distinctive features of future armed conflict Gareev devotes considerable space to the origins and evolution of nuclear war fighting. He concludes that it has reached a dead-end as a rational instrument of policy, leaving the nuclear powers with the task of finding a new way to sustain nuclear deterrence under new geopolitical and military-technical conditions. Nuclear arms reductions can go to minimal deterrent forces, but nuclear weapons will remain in the arsenals of these states for several decades.114Gareev strongly disagrees with the new Russian military doctrine's open proclamation of possible first-use of nuclear weapons and points out the serious political dangers associated with such a declaratory policy. Dismissing the need for such actions against a wide range of states and noting the terrible risks associated in the use of such weapons against another nuclear power, Gareev concludes that a defensive military

doctrine and first use of nuclear weapons amount to a dangerous contradiction. It can lead to confusion in times of crisis that could result in dangerous miscalculations. The path to stable deterrence is to be found through "the rejection of the concept of global nuclear war and through planning only deterring nuclear strikes."115 The impact of residual nuclear capabilities and the political deterrence associated with them is likely to make conventional war more limited in terms of objectives and even the use of conventional forces.116

Gareev breaks most completely with the Soviet past in his discussion of changes in operational art and tactics of conventional warfare. Change here has been revolutionary. These enhanced conventional capabilities have the potential to make conventional warfare in the future more destructive but this will not lead to a negation of the use of force or threat of force. Conventional wars of various intensities are already being fought. On the trends affecting changes in military art Gareev begins with certain political-military assumptions about the course of world affairs over the next decade and a half. First, he stresses low probability of a "conventional world war." In the absence of such wars, states will rely on two means to achieve their objectives: subversive actions against other states and the setting of limited goals and their gradual accomplishment through local wars, which could evolve into large-scale armed confrontations. He speaks of three forms of strategic employment of the armed forces: 1) strategic deployment (partial for local wars, and complete for large-scale wars); 2) the combat use of forces and means in local wars and conflicts; 3) the use of armed forces in large-scale armed struggle, including the readiness of nuclear forces for strategic deterrence, operations to counter the enemy's aerospace assaults; operations in a continental theater of military actions; operations in oceanic and sea theaters of military action; operations of long-range aviation.117

Gareev has reread Liddel-Hart's writings from the 1930s and has become a forceful voice for the application of indirect strategy. Gareev finds the roots of such an approach in the works of Sun Tzu, Clausewitz, and Jomini, and emphasizes the link between limited means to achieve limited ends and the application of stratagem [voyennaya khitrost'] a la General V. N. Lobov. The emphasis is upon the political utility of measures to prevent war in supporting an indirect approach to achieving strategic objectives. Gareev cites as a successful example the deployment of Russian warships to US waters in 1863 as part of a deterrence strategy, i. e., threatening England and France with guerre de course in case they chose to intervene in the Polish Insurrection.118 Conflict prevention and localization are tied to political measures associated with imposition of will upon an opponent via "economic sanctions, naval, air, and ground blockade of communications, demonstrations of force, assignment of peace-making [mirotvorcheskie sily] for the separation of the sides and other means of action."119 He cites the US intervention in Haiti in 1994 as an example of employing such means to achieve political success. These measures Gareev treats as political-military instruments to achieve limited ends involving compromise among the opposing sides. Should such measures fail, then escalation can follow involving offensive actions aimed at the military power of the offending party. These may involve a sequence of operations like those in Desert Storm, beginning with a strategic air operation of unspecified length and culminating in an air-ground offensive after the effective suppression or destruction of the enemy's basic fire means and most important objects, including C3I. Reverting to a theme not seen in Russian/Soviet military writings since the 1920s, Gareev speaks of the need to adapt military art to the problem of warfare among more-technologically and less-technologically developed states. In part this is a lesson drawn from Afghanistan, but it

carries with it two contradictory conclusions with very significant consequences. Advanced states may be able to conduct wars of a new generation in which their forces will not be applied to the direct destruction of the opposing force but rather would bring about a collapse of their opponent's military power from within, using political and economic means. On the other hand, the forces involved in combat in such wars will be quite numerous, involve significant losses and require the mobilization of reserves. Protracted conflicts will negate the advantages of small, professional armies because wars will still be fought by nations.120

The internal content of military art, i. e., strategy, operational art, and tactics will undergo even more profound changes as a result of technological innovations. Future developments will shift the balance among fire, strike and maneuver, because advanced precision weapons, electronic warfare means, and modern troop control systems will allow for simultaneous fire and strike maneuvers throughout the depths of the enemy's dispositions in theater in what Gareev terms sea-air-land operations. Such an operation could lead to the simultaneous destruction of the most important enemy groupings and thus negate the need for successive operations. Such combat actions will link together the battles on the front, flanks, and in the rear of the opponent in a nonlinear battlefield without stable front lines and will involve significant maneuver in depth by airmobile forces. There will be a blending of offensive and defensive actions.121 Forces will be increasingly dispersed to enhance their survivability, while fire and strikes will be concentrated. The rapid and sharp changes in the situation along with the introduction of automated systems of control will complicate and profoundly transform the actions of commanders and staffs in relations to their control of troops and naval forces. A tendency towards greater possibilities for central control will go hand-in-hand with the need to provide junior commanders with sufficient information to exercise initiative.122

Gareev's views here are markedly evolutionary. He sees these changes in the relationship of fire, strike, and maneuver as improvements but not qualitative changes. This view is in stark contrast with that of RADM V. S. Pirumov, Russian Navy (retired), President of the Section on Geopolitics and Security of the Russian Academy of Natural Sciences. Pirumov, who served as Chief of Radio-Electronic Warfare on the Main Naval Staff under Admiral Gorshkov and taught in that field at the Academy of the General Staff until the early 1990s, speaks of these changes in the role of reconnaissance, command and control, and radio-electronic warfare as creating a new combat category, "electronic-fire." He describes this as a process designed to disorganize enemy C3I and speaks of the evolution of warfare in the twentieth century from fire dominance, to command of the air, and now to command of the "ether," a concept demonstrated by US and coalition forces in the Persian Gulf.123 Command of the air waves allows the attacker to disorganize the opposing forces, including its air defenses, setting the stage for command of the air and the conduct of deep fire-strikes. Pirumov asserts that the Revolution in Military Affairs has already turned radio-electronic warfare into a combat system of decisive importance and made "information warfare" into a new category of armed struggle. He suggests that in a time of military reform and declining budgets a new method should be developed to asset the contributions of various systems to the overall combat potential of the force.124In his official capacity as Chairman of the Scientific Board of Russia's Security Council, Pirumov has stressed the need to make information security into a vital component of Russia's national security.125

Gareev warns, however, that any radical forecast which emphasizes only change and revolution will miss the profound continuities in military art. He does not address the Russian proponents of such views as Pirumov or Shevelev. Instead, Gareev attributes such views to Dr. Andrew Marshall, the Director of the Office of Net Assessment in the Pentagon, whom he identifies as one of those visionaries. They see the "information era" leading to a transformation of warfare as profound as that which came with the introduction of gun powder in the fifteenth century. In this view mass armies will disappear to be replaced by "small formations of professionals-specialists, who will be in a position to destroy the enemy without ever entering into direct contact with him."126Hand-to-hand combat and even tank battles in this interpretation are things of the past. Intelligent weapons -- such as self-guided missiles launched from submarines -- will destroy tanks located hundreds of kilometers from their launch point. Aircraft carriers will be scrapped and replaced by small-displacement warships incorporating stealth technology.127 "From this [perspective] Marshall considers the Persian Gulf War of 1991 the last or one of the very last armed actions of the industrial age. Although high-tech weaponry took part in it, it was conducted, he believes, by old methods."128

Gareev asserts that military art is more likely to evolve than to be transformed by "ultra-radical leaps," the issue will be one of old forms taking on new content. An example of this relationship is the principle of concentration of forces under conditions dominated by high-accuracy, deep-strike systems. Forces will have to be more dispersed to increase their survivability, but new C3I capabilities will make it possible to concentrate fire and strikes.129 The difference that Gareev has chosen to emphasize is one of technique guiding technology. This is a dialectical, as opposed to technologically-determinist view of future armed conflict.

These changes will involve a significant transformation in the nature of "the initial period of war." These changes will affect the means of preparing and conducting offensive and defensive operations, the conduct of meeting engagements, the means of executing fire destruction, the perfection of maneuver and approaches to the massing of the necessary density of forces and means on the most decisive directions. Gareev assumes that in the future the initial period of war will be the most decisive, in many ways determining its outcome. But as opposed to the past, war may not start with the advance of ground forces. It can even start before the concentration and deployment of ground forces have been completed. Gareev expects a future war to begin with a relatively long air operation. Air and naval forces during this period will conduct massed air, missile and electronic strikes against enemy aviation, missile forces, naval forces, air defense systems, command and control points, industrial and other important targets. Later these strikes will be directed against the basic groupings of opposing ground forces. "Aviation and naval forces can carry out such missions from distant bases without a full and complete concentration."130 To achieve political objectives and impose one's will upon the adversary, ground forces will advance and occupy the ground after the enemy's destruction by fire and strike. The optimal force for such operations would be a high-cost, professional army, but by its very nature such a force will be very sensitive to heavy losses. Thus, it will seek to create conditions to keep its casualties to a minimum. In the case of most conflicts, there will not be any way to avoid the clash of armies if major political objectives are to be achieved.131

Gareev concludes his discussion of military art by making a compelling case for the rejection of the Gorbachev era concept of "non-offensive defense" as an ideological position unconnected to

the realities of warfare and military art. A posture renouncing the offensive robs a state of any means of recovering territory taken by an aggressor. Such a posture is, according to Gareev, incompatible with the objective of war prevention in pursuit of defense of vital national interests. He once again stresses the tendency of offense and defense to blur in terms of means and methods as the defenders seek to use counter-strikes and fire to destroy an opposing force before it comes into contact. The very nature of encirclement operations, the highest form of operational maneuver, will have to be changed to adapt to the new conditions.132

On the capital issue of raising the force to fit new political-military and military-technical requirements, Gareev discusses three alternatives: a voluntary, professional force, a conscript force: and a mixed cadre-conscript force. He comes down firmly on the side of those advocating a shift to a mixed system of professionals with the retention of some mass conscription in Russia. In support of this course he points to limits on financial means and the heightened demands placed on personnel by the technical complexity of advanced weapons systems as factors favoring such a development. He notes the need for increased integration between army and society under "new socio-political conditions" and calls for new training techniques to enhance the competence of conscripts who are serving for shorter periods of time. Gareev points to the retention of the draft in Germany after unification and notes its role as a tool for political integration.133 Other states with other interests, traditions, geo-strategic circumstances, demographics, economics, and tasks for their armed forces will find other variations appropriate. Appropriate priorities in making correct choices will be critical. Gareev notes the importance of economic considerations but says that state objectives and military effectiveness are the capital considerations: "defense costs as much as a nation values its sovereignty."134

Gareev concludes his study of military development with a discussion of the organization and adaptation of strategic leadership to future conditions. He sees the evolution of strategic leadership on two main axes: authoritarian/ totalitarian and open/republican/democratic. The shift from one type of strategic leadership to the other is, however, fraught with risks. In those states where the head of state is also commander-in-chief and there is a weakly-developed civic society, as in Russia today, there is considerable risk associated with the direct subordination of the ministry of defense to the president because it weakens parliamentary oversight and leads to a situation "where all relations between the ministry of defense and the head of government [and] party are built upon principles of personal loyalty."135 This situation affects the effectiveness of parliamentary and political control over the military in those states that emerged from the former Soviet Union, including Russia and is dangerous militarily and politically because it weakens public oversight and contributes to the degradation of the military by ignoring or concealing its flaws from such scrutiny. Gareev sees military-technical developments pushing for a sharp division in national strategic leadership between that charged with military-political and that charged with military-technical issues and calls for a stronger institutional position for the General Staff, giving it direct access through its chief to the commander-in-chief in time of war and peace.136 Given the current weakness of Russia's political leadership, the incomplete process of institutionalization of a national-security decision-making process, the tendency toward arbitrary actions and the increasing politicization of the military, such a process would seem protracted, difficult, and fraught with dangers. This problem brings us back to the question of military forecasting in contemporary Russia and its reception.

CONCLUSION

In his conclusion Gareev sounds very much like the Oracle of Delphi. His warnings are ambiguous. There is no clear, single form to future war. Instead, he sees contradictory trends shaping future armed conflicts and the armed forces that will have to fight them. He warns that in the future, local wars and conflicts will become a more widespread danger because of their possibility of escalating into larger conflicts. Given what he sees as the serious threats to stability in a multipolar world and the absence of a new world order and international mechanisms to manage crises and conflicts, he leaves his reader with a call for the international community to engage in common efforts to prevent war. When that fails, he advocates rapid actions to counter aggression. He regards the existence and will to employ such military means as the best tool for deterring aggression. Gareev sees nuclear war as a conscious policy choice by any state as a remote prospect. The unsanctioned use of nuclear weapons or their acquisition by terrorists are, however, possible. But the center of gravity of military preparations will continue to shift to conventional war-fighting capabilities. Most states will find their defense policy directed toward preparing their forces for local wars, military conflicts, and peace-making [mirotvorcheskie] actions, while retaining the ability to execute mobilization and deployment of forces to counter aggression and engage in a large-scale war.

In terms of how the force will be raised Gareev points to contradictory trends. Advanced weapons and more complex technology will drive the economically developed states toward professional armies. But the demands of greater integration of army and society, new socio-political conditions, the higher levels of education among youth, and new forms of control for advanced weapons will make possible more rapid and effective training. Thus, a mixed system of cadres and conscripts seems the optimal answer to raising the force. Military training will emphasize the use of conventional weapons. The employment of the armed forces will be more multifaceted, demanding greater flexibility and a variety of methods of direct and indirect action. The tendencies affecting the development of the nature and methods of conducting combat carry a contradictory character and do not have a single direction. The new weapons seem to offer means of rapid decision of the most sweeping strategic goals, but the same systems could inflict such losses that they would impose protracted, attrition combat on the imposing sides, if decision is not achieved initially. Lethality of weapons and the vulnerability of targets have increased to such an extent that what is required is an entirely new approach to the way success is achieved. Gareev sees a continuing struggle between new reconnaissance, especially space-based reconnaissance, which tends to make the battlefield more transparent, and newly emerging means of maskirovka [camouflage and concealment] and disinformation, which offer new possibilities for concealment and surprise, have emerged. These developments further lead to a serious need to address the advantages vs. disadvantages of centralized automatized control, while simultaneously exploiting new systems of troop control, which provide relative independence and initiative. Most of all, Gareev warns against one-sided interpretations of trends "to see not only the separate, most brightly illuminated phenomena and then orient on exclusively on them." The forecaster must take into account the contradictory tendencies shaping military art. This multifaceted view is the only way to draw proper conclusions regarding military activities. "This is one of the most important lessons of experience and this approach more accurately reflect the tendencies and prospects of the development in military affairs."137

The wars of the future can be even more serious tests for peoples and armies than in the past. And so that the armed forces of peace-loving states could with fewer losses and with the greatest effectiveness resolve defense tasks, one needs, without ultra-radical exaggerations and conservatism to really evaluate the nature of the armed struggle of the future and the prospect for the development of military art. Only under this circumstance it is possible to achieve a situation when commanders and staffs at all levels, ground, air, and naval forces will really be prepared for what can be demanded of them on future battlefields.138

For those who want to see future war as bloodless exercises in "anti-war" in which high-tech, information warfare negates the ambiguity and complexity of war and turns it into a constant and controllable phenomenon, Gareev may also be a Cassandra. His emphasis on the limited abilities to control war, once unleashed, and to keep it from transforming itself may not convince a new generation which places its faith in technological advancement. Gareev does not leave us with much confidence that conventional, local war can be kept under control in the new circumstances of a multipolar international system with a high degree of regional instability as a consequence of rekindled ethno-national conflicts. Information war in this context is a necessary, evolving but not decisive tool, the implications of which for future war must be seen quite broadly in all their contradictions.

This is not an optimistic message. It warns against excessive faith in either ultra-radical or conservative positions and leaves the forecaster still trapped with Sisyphus. For the statesman and soldier the key point to foresight in military affairs is to grasp the interconnections between military-political and military-technical developments and seek those trends and contradictions that will shape future war in all its complexity and dynamism. The forecaster has to understand the relationship between his message and the intended audience. Some of his audience will hear only part of the message, others will interpret the message according to their own lights, still others will reject the message because of conflicts in ideology or interest. Few may hear and understand it, but will act according to their own motivations and interests. Forecasts made today about trends that will impact in 2015 translate into immediate decisions and begin to shape that future. In the past Soviet military forecasters had the advantage of a closed system and a dominant ideology, which not only authoritatively shaped their forecasts, but also allowed them to work with a narrow elite and limited channels of communication. Russia is now an open society, governed by a weak government, chaotic legal system, and poorly defined institutions. Its military is trying to find its place in that society, and its forecasts, including that of General Gareev which we just reviewed, must be seen as part of an ongoing political struggle. The relevance of Gareev's forecast depends very much upon who will hold political power and control the military in Russia. And that remains unclear at this time.

Does Gareev's forecast on future war place a dis- proportionate emphasis on the role of military power in the future? As the professional judgment of a long-time soldier, this does not seem to be the case. There are, of course, reservations about the future of US - Russian relations and a very consistent effort to see the sources of conflict in the world from a Russian national perspective. But this hardly qualifies as militarism. Gareev, as an old soldier and experienced General Staff Officer, is pessimistic about preventing wars, abolishing nuclear weapons, relying on defensive defense, or proclaiming a politically-based, defensive doctrine which contradicts conventional military logic. But he is also concerned about a proclaimed policy of first use of

nuclear weapons, sees a need to seek arms control agreements covering non-nuclear strategic forces, and is no enthusiast for challenging the maritime power of the US. He seeks instead to create a system of national defense based on Russia's position as a continental, Eurasian power. While influential, his is only one voice in what is still an open, often-rambunctious, civil-military debate over national security policy. Given the fact that President Yeltsin authorized the creation of the Academy of Military Sciences, of which Gareev is president, it would seem for now that Gareev's views should be seen as more Delphic - ambiguous but significant - than Cassandrian for Russian statesmen, soldiers, and politicians.

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were realized in the means of reconnaissance, control, and high-precision weapons, as well as by the forces and means of electronic warfare (EW)." See: V. Pirumov, "Nekotorye posledstviya informatizatsii vooruzhennoy bor'by po itogam boevykh deistviy v zone Persidskogo zaliva," in: Akademiya Estestvennykh Nauk Rossiyskoy Federatsii, Sektsiya Geopolitiki i Bezopasnosti, Problemy regional'noy i global'noy bezopasnosti v kontse XX-nachale XXI vekov; Vooruzhennye sily i vysshee voyennoe obrazovanie (Moskva, 6-11 sentyabrya 1992 goda. Vystupleniya i materialy (Moscow: AVIAR, 1993), pp. 111-113.

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129. Ibid., pp. 129-130.

130. Ibid., pp. 132-133.

131. Ibid., pp. 132-133.

132. Ibid., pp. 135-137.

133. Ibid., pp. 153-172.

134. Ibid., p. 172.

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137. Ibid., pp. 216-219.

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